

REMARKS

1. Claims 1-16 were pending. Claims 3, 5, and 16 have been cancelled. Claims 1, 2, 6, 7, and 9-15 have been amended. Claims 1, 2, 4, 6-15, and 17-28 are now pending. Reexamination and reconsideration of the application, as amended, are requested.

2. Rejections under 35 U.S.C. § 112 ¶ 2

On page 2 of the Office Action, Claims 1-4 and 6-16 were rejected under 35 U.S.C. § 112 ¶ 2. These claims have been amended to more particularly point out and distinctly claim that which the Applicant regards as his invention. Withdrawal of the rejections is respectfully requested.

3. Rejection under 35 U.S.C. § 102(b) and § 103(a)

Claims 1-4, 6, and 10-16 were rejected in the Office Action under 35 U.S.C. § 102(b) as being anticipated by Tada et al. (US Patent No. 4,961,052). Claims 1 and 8-9 were rejected in the Office Action under 35 U.S.C. § 102(b) as being anticipated by Wood et al. (US Patent No. 5,519,332). Claim 7 was rejected in the Office Action under 35 U.S.C. § 103(a) as being unpatentable over Wood et al. (US Patent No. 5,519,332) in view of Huether (US Patent No. 4,450,314). The Applicant respectfully traverses the rejections and requests consideration of the following.

4. The Teaching of Tada et al.

U.S. Patent No. 4,961,052, issued to Tada et al., teach an electrical insulation material for a base plate 10. Base plate 10 is non-planar, as is seen in Figures 1A, 1B, 1C, 2A, 3, 4A, 5A, 5B, 6A, and 6B. Tada et al. also teach that base plate 10 is composed of a photosensitive glass, as

described in column 3, lines 47-48. In constructing plate 10, the photosensitive glass is subjected to ultraviolet light so as to crystallize the photosensitive glass. This process is described in column 7, lines 35-50. Once the photosensitive glass of base plate 10 is crystallized, the crystallized portion of the photosensitive glass is etched away. As such, only the uncrystallized portion of the photosensitive glass in base plate 10 remains after the crystallized glass is etched away. As such, base plate 10 cannot be composed of crystallized glass because the crystallized glass is described as being etched away in the process of forming base plate 10. Additionally, Tada et al. is taught as being non-planar, whereas the present application describes a planar substrate of uniform thickness upon which a conductor is placed.

5. The Teaching of Wood et al.

U.S. Patent 5,519,332, issued to Wood et al., teach a carrier 12 having a cavity 26 therein. An interconnect 16 is disposed within cavity 26 of carrier 12. As described at column 4, lines 57-59, an adhesive may be necessary to adhere interconnect 16 within cavity 26 of carrier 12.

Wood et al. also describe a multi-layered base plate 10, as seen in Figure 4, or a plastic molded non-planar structure, as seen in Figures 7-9. Carrier 12 seen in Figure 3 is also a non-planar structure due to recess 26. As seen in Figure 4, metallization material extends into the various recesses of carrier 12 made up of the multiple ceramic sheets that are laminated together.

Wood et al. depicts an insulator layer on a conductor as seen in Figure 5. Figure 5, however, depicts an interconnect 16 rather than carrier 12. As such, interconnect 16 is not analogous to the substrate of the claimed invention.

6. The Teaching of Huether

Huether, U.S. Patent No. 4,450,314, teaches a thermocouple made of silicon carbide and carbon. A thermocouple is an electrical circuit consisting of two dissimilar materials, such as two metals, or a semiconductor and a metal, which are joined together. When the dissimilar metals are kept at different temperatures, an electromotive force is produced. Huether teaches a silicon carbide tube surrounding an electrically insulating tube, and a rod within the electrically insulating tube. The purpose of the electrically insulating tube is to maintain a distance between the carbon rod and the silicon carbide tube in the event of plastic deformation during heating. The insulating tube, which is situated between the silicon carbon tube and the carbon rod, can be made of boron nitride, as disclosed at column 2, lines 36-45.

7. The Present Application and Claimed Invention Contrasted With the Applied Art

The present application discloses a planar top surface on a substrate 18. Substrate 18 is composed of an electrically insulative material. In the elected aspect of the disclosed invention, as seen in Figure 8, substrate 18 has a uniform thickness. A conductor 20 is situated upon the top planar surface of substrate 18 and does not extend into substrate.

Substrate 18 is not taught as being composed of a plastic material or a photosensitive glass or ceramic material. Substrate 18 is not formed by a combined ultraviolet crystallization and etching process. Neither is substrate 18 taught as being a laminate of a plurality of ceramic sheets. The disclosure of the present application is not directed towards a temperature measurement device or a thermocouple structure.

Neither Tada et al. nor Wood et al. describe a substrate of uniform thickness having a planar surface upon which an electrical conductor is situated. Wood et al. teach a metallization

material which extends into the carrier, whereas the present application supports the specification which discloses the electrical conductor to be upon a planar surface of a substrate included in the interposer structure. Unlike Tada et al. and Wood et al., the claimed invention recites a substrate of uniform thickness and having a top planar surface. A conductor is recited as being the top planar surface.

The materials of the recited substrate or sheet of claimed invention are not found in any of the teachings of Huether, Tada et al, nor Wood et al. These materials include crystalline glass, nitride, nonmetallic nitride, aluminum nitride, boron nitride, carbide, nonmetallic carbide, devitrified ceramics, vitro ceramics, and single oxide ceramics, as well as various recited combinations of the foregoing. Wood et al. disclose a substrate composed of a ceramic such as alumina. The recited crystalline glass substrate or sheet of the claimed invention can be contrasted with the teaching regarding the base plate of Tada et al. which cannot be crystallized glass because the crystallized glass is taught to be etched away in the process of forming the base plate.

Huether's teaching is non-analogous to the semiconductor technology taught by the present application. As such, Huether only lends teaching that boron nitride is electrically insulative. Huether does not suggest, imply, or teach directly that an interposer can be constructed of boron nitride. Rather, the teaching of Huether is directed towards components of a high temperature thermocouple, wherein the purpose of the boron nitride is to maintain an electrically insulative separation between a cylindrical tube and a rod.

8. In sum, the Applicant respectfully submits that, as to the claims now pending, a *prima facie* case of obvious has not been made out, or in the alternative, the pending claims avoid the



rejection. As such, the Applicants respectfully maintain that the present application is in condition for allowance. Reconsideration of the rejections is requested. Allowance of Claims 1, 2, 4, 6-15, and 17-28 at an early date is solicited. In the event that the Examiner finds any remaining impediment to a prompt allowance of this application which could be clarified by a telephonic interview, the Examiner is respectfully requested to initiate the same with the undersigned attorney.

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Respectfully submitted,

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